in the "Diœcesis Tuamensis," of which the "Extenta et taxatio facta fuit, 28mo. Eliz." So that it seems highly probable that "Bullyngiona" may have been but an arbitrary Latinization of the same name by the artificer by whom the seal was made, possibly a monk of the religious house to which it belonged.

Mr. Clibborn made the following communication on the subject of the Leyden Jar.

"In Brand's Manual of Chemistry, vol. i., 3rd Edition, p. 76, I find it stated, that, 'if one Leyden jar be insulated, with its internal surface connected with the positive conductor, another jar may be charged from its exterior coating; and if this second jar be insulated, a third may be charged from its exterior coating, and so on for any number of jars, provided always that the exterior coating of the last jar be connected with the ground.'

"As my electrifying machine was but small, it occurred to me that I might economise both time and labour by constructing a battery of jars so arranged that I should be able to take advantage of this principle, and make one jar charge another, instead of my being obliged to charge the whole series; for, though they are all connected together, and charged by the same operation in the common electric battery, yet the time and labour consumed in charging the battery is exactly the same as if each jar were charged separately and then added to the series. A great saving of labour and time would have been effected had the arrangement of jars answered, for it was exactly the same as that described by Brand, so far as the charging part of the apparatus was concerned; but when the jars were loaded, or rather *should have been loaded*, they were made to turn through a quadrant, and form a new arrangement, by which all their outside coatings were connected together by a common conductor. A similar arrangement connected all their inside

coatings, which made all the conditions necessary to the perfection of the common battery; and I found it capable of being charged by the electrifying machine in this form, but it could not be charged to any extent in the other. It appeared, that but few sparks would pass from the conductor to the first jar. If the last one was removed, and its chain fastened to the next, the first jar would take a few more sparks, and so on; for it was found that whenever the last jar in the series at any time was removed, the same results followed; and this was the case when the last but one was removed, clearly proving, that the capacity or aptitude of the first jar to take a charge was influenced and diminished by the second, more so by the third, fourth, &c. Its aptitude was greatest when it was by itself, and not connected, as described, with the others.

"This result disappointed my expectations, so far as my intended improvement on the electric battery was concerned; and it also appeared to point out the existence of a principle influencing the charge of the electric jar, which was not recognized in the popular treatises on electricity. I procured a number of glass plates with fixed and moveable coatings. These plates were insulated and arranged with and without coatings in every way that Brand's rule required, but the general result was the same as that given above.

"From numerous experiments made with these plates, I came to the following general conclusions:

"1. That the actual quantity of the positive and negative electricities which we can accumulate in the *opposite surfaces* of an electric or non-conductor, as a plate of glass or dry ice, depends upon the *distance* of these surfaces.

"2. Every case of charge of *one* jar or plate may be assimilated to that of any number of jars or plates in a series, such as Brand's, by supposing the one jar or plate to be divided into the greater number, its thickness being the *sum of the thicknesses of all the segments or plates.* The inside of the

first jar or surface of first plate, in contact with conductor, and outside of last jar or plate in contact with the ground, being considered as the proper *opposite surfaces* of the proper plate, and those on which the electricities evolved by the friction of the cylinder and rubber of the electrifying machine are accumulated or heaped.

"If we make a pile of the plates coated or not, and charge the outside surfaces by coating them, and connecting one with the cylinder and the other with the rubber of the machine, we find all the conditions of the experiment complied with. There is no necessity for any connexion with the ground, which in Brand's can act merely as the conductor to convey the negative charge of the rubber to the extreme surface.

"Let us now unpack the pile, and we find that the charge of the intermediate plates diminishes, as we approximate towards the centre of the pile, being greatest near the extremes. At equal distances the charges are equal; for the charges of the first plate but one, and the last but one, will as perfectly neutralize each other as the charges of the surfaces of the first and last. The same is found to be the case with the surfaces of the third plates from each extreme, and so on of the others; but it is not the case with a second and a third, a first and a fourth plate, and so on, *no two unequals as to place* exactly neutralizing each other. Hence we may conclude, that the charge of the intermediate jars in a series, such as described by Brand, though it really depends on inductive agency, is altogether different from that kind he alludes to, which may be inferred from his erroneous representation of the actual fact; and the charge of the extreme surfaces is immediately the result of that action only, which several electricians have called conduction, arising from the connexion of these surfaces with the sources of the free electric forces.

"The fact here described appears capable of throwing much light on the corpuscular arrangement of the atoms of

bodies, which retain an electric charge on their surfaces, or which, by a change of form from mechanical pressure or difference of temperature, exhibit differences of electric state. In speaking of a charged electric, we may consider it a pile of an infinite number of plates, each of which, except the extreme surfaces, is composed of a surface of atoms, which are acted on by two sets of induced electric forces, whose differences, arising from their distances from the extremes, we discover when we split the plate, or if it be a pile, when we separate the plates from each other."

January 11, 1841.

His Grace the ARCHBISHOP OF DUBLIN, V. P., in the Chair.

Rev. Henry Barry Knox, Rev. John West, Thomas Fortescue, Esq., M. P., Chichester Bolton, Esq., and Henry Coulson Beauchamp, M. D., were elected Members of the Academy.

The Rev. Thomas H. Porter, D.D., read a paper "On the Deposits of Gravel in the Neighbourhood of Dublin."

After detailing the facts commonly known as to the stratified beds and ridges of limestone gravel, lying over the great central limestone region of Ireland, and the continuance of deposits containing a large proportion of rounded pebbles and stones of the same material, over the granite and other primitive rocks to the eastward of the limestone country; it was argued that there were clear indications of a great diluvial action from west to east, by which the surface of the limestone was reduced to its present level, and the remains of its upper portions spread over the limestone